

## WHAT IS CLAIMED IS:

1. An integrated heat transfer device comprising:

a planar lightwave circuit (PLC);

5 a heating line attached to the lower surface of said PLC; and,

an external power source coupled to said heating line for generating heat thereto.

2. The integrated heat transfer device of claim 1, wherein said heating

10 line is a thin film attached to the lower surface of said PLC via a silk printing process.

3. The integrated heat transfer device of claim 1, further comprising an insulation layer attached to the lower surface of the PLC having said heating line fixed thereto.

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4. The integrated heat transfer device of claim 1, wherein at least one pad is attached to at least one end of said heating line to electrically connect said

heating line to said external power source.

5. A method for making a semiconductor device, the method comprising the steps of:

- 5 providing a planar lightwave circuit (PLC);
- adhering a heat line to the lower surface of said PLC;
- providing an insulation layer attached to the lower surface of said PLC containing said heat line; and,
- coupling an external power source coupled to said heating line for
- 10 generating heat thereto.

6. The method of claim 5, wherein adhering said heat line to the lower surface of said PLC being performed by silk printing.

- 15 7. The method of claim 5, wherein at least one pad is attached to at least one end of said heating line to electrically connect said heating line to said external power source.

8. An integrated heat transfer device comprising:

a planar lightwave circuit (PLC);

a heating line attached to the lower surface of said PLC;

an insulation layer attached to the lower surface of the PLC containing said

5 heating line; and,

an external power source coupled to said heating line for generating heat  
thereto.

9. The integrated heat transfer device of claim 8, wherein said heating

10 line is a thin film attached to the lower surface of said PLC via a silk printing process.

10. The integrated heat transfer device of claim 8, wherein at least one  
pad is attached to at least one end of said heating line to electrically connect said  
heating line to said external power source.